

18.111. 1416 1496, 1045  
 22519  
 S/133/51/000/001/013/016  
 K054/K033  
 AUTHORS: Uzhik, G.V., Gal'perin, M. Ya., Koshelev, P.P., Livshits, O. L.,  
 and Terent'yeva, Ya. K.

TITLE: The Mechanical Properties of Low-alloy Steels (Plates)

PERIODICAL: Stal', 1961, No. 1, pp. 68 - 73

TEXT: The application of low-alloy high-strength steels instead of the standard Cr.3cm (St.3sp) and Cr.3km (St.3kp) carbon steels makes it possible to reduce the weight of the structures by about 15 - 20%. To determine the mechanical properties of these types of steels at low temperatures (-70°C, -196°C) tests were carried out with the 19Г (19G); 09Г2 (09G2); 14Г2 (14G2); 15ГC (15GS) (Al'chev Metallurgical Plant), and the "Krasnyy Otkryabr" Plant, having the following chemical composition:

Table 1:

- 1 - chemical composition of investigated melts
- 2 - steel grade (Number of melts)
- 3 - plate thickness, mm

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The Mechanical Properties of Low-alloy Steels (Plates)

① Химический состав исследованных сталей, %

Марка стали (номер партии)	Толщина мм	C	Si	Mn	Ni	Cr	Cu	P	S	Al	Ti
19Г (4516)	9	0,16	0,27	0,89	—	—	0,020	0,035	0,019	—	—
12XFN (2507)	12	0,15	0,22	1,22	1,04	0,36	0,07	0,027	0,030	0,03	0,03
14Г2 (1585)	20	0,14	0,27	1,38	0,14	0,26	0,15	0,037	0,020	—	—
14Г2 (3114)	20	0,18	0,33	1,62	0,12	0,21	0,13	0,034	0,023	—	—
15ГС (3181)	20	0,12	0,53	1,22	0,11	0,16	0,11	0,032	0,018	—	—
15ГС (3186)	20	0,16	0,72	1,32	0,17	0,29	0,14	0,030	0,016	—	—
09Г2	11	0,11	0,35	1,59	0,05	Средн.	0,07	0,012	0,032	0,03	Средн.

The steels were tested for tensile strength in the temperature range between +20° and -196°C, for notch impact strength and static bending, (+20°, -70°C), moreover for fatigue, (flat specimens bent in one plane, at +20°C, cylindrical specimens with bending and torsion). The tensile strength tests were carried out on a 30-ton multipurpose hydraulic test machine, in which the speed of the upper grip is 0.8 mm/min, the lower grip being stationary; the coolant used up to -70°C was ethyl alcohol, and up to -196°C liquid N. Prior to immersion each specimen was held at the test-temperature for 30 minutes. The notch impact strength tests were

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The Mechanical Properties of Low-alloy Steels (Plates)

made with 10x10x55 mm samples with Mesnager notches. An M4-30 (MK-30) type drop test machine was employed, as prescribed by ГОСТ (GOST 1524-42). For static bending the 30-ton multipurpose test machine was also used; the bending was plotted (scale 24:1) by a special device. Fatigue tests at room temperature with flat specimens were carried out with the MYK (MUK)-100 type machine (for plain bending in one plane with a load frequency of 1500/min) while cylindrical samples were tested for the fatigue on HY (NU) type machines (3000 loadings/min). Samples of various thickness, with polished and unground surfaces, with and without notches were studied. Strength and ductility: The relationship between strength, ductility and temperature for the various steel grades is shown in table 2, while figure 1 represents the dependence of the  $\frac{\sigma_{0.2t}}{\sigma_B}$  (a) and  $\frac{\sigma_{Bt}}{\sigma_B}$  (b) ratios on temperature. The strength limit of the  $\sigma_{0.2}$  tested steels increases approximately in the same way to  $-70^\circ\text{C}$ , but increases intensively mainly in the 19G type steel at  $-196^\circ\text{C}$ . The transition of the material from the plastic into the brittle condition is characterized by the gradual change of the differences ( $\sigma_B - \sigma_{0.2}$ ) and ( $S_k - \sigma_{0.2}$ ) under the effect of the temperature reduction, (Fig. 2). The smaller the difference the nearer the material is to brittleness. At  $-196^\circ\text{C}$  the plasticity of 19G, 12KhGN, 14G2 and 153S steels decreases considerably, mainly that of the 14G2 type. Elongation per unit length and la-

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The Mechanical Properties of Low-alloy Steels (Plates)

teral compression are characteristic for the metal with regard to change in ductility and its ability to maintain ductility even at low temperatures, which eliminates the risk of brittle fracture (mainly under dynamic load). These properties do not change in 19G and 12KhGN grade steels and only slightly in 14G2 and 15GS. The most sudden decrease in notch impact strength at temperatures between +20°C and -70°C could be observed in 14G2 and 15GS ( $a_k < 1 \text{ kgm/sq cm}$ ), most probably due to the heat condition of rolling. The smallest drop in this property ( $a_k = 2.6 \text{ kgm/sq cm}$ ) was found for 09G2 steel. The trend to brittle fracture was tested by brittle loading (Fig. 4). The diagram plotted for prismatic samples with Mesnager notches proves that the highest resistance against brittle fracture up to -70°C is shown by 09G2 steel. 12KhGN is not highly resistant against brittle failure at -70°C, 14G2 loses its toughness already at -30°C, 15GS also tends to produce elastic-plastic deformations at all temperatures. Table 3 clearly shows that 14G2 has the strongest trend to brittle failure, between +20° and -70°C (due to a higher carbon content), while the highest degree of failure resistance can be found in 09G2. In the fatigue tests the results were affected by the surface of the samples. In rough flat samples of 12KhGN steel the fatigue limit is 31.8% lower than in samples having a smooth surface. Polished cylindrical samples have a higher fatigue limit than polished flat samples. The highest fatigue limit

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# The Mechanical Properties of Low-alloy Steels (Plates)

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was found in 15GS steel (melt 3106), while at room temperature there was hardly any difference in fatigue limit between the grades 14G2, 15GS and 19G, both for polished and notched surfaces. Notched samples (with stress concentration on the surface) have the highest fatigue limit when made of 19G steel, (Fig. 7). There are 7 figures, 4 tables and 2 references: 1 Soviet, 1 Non-Soviet.

Table 2:

Indices of mechanical properties of low-alloy steels for tensile tests  
1 - steel grade; 2 - test temperature

Показатели механических свойств низколегированных сталей при испытании на растяжение

Метка стали ([C], %)	Температура испытания °C	$\sigma_{0.2}$ кг/мм <sup>2</sup>	$\sigma_B$ кг/мм <sup>2</sup>	$\delta_5$ %	$\delta_{10}$ %	$\psi$ %
19Г (19G)	+ 20	34,9-35,9	52,1-53,3	87,8-92,2	27,7-28,6	47,8-51,2
	- 20	38,8-39,0	57,5-58,0	96,0-98,8	29,5-33,6	49,2-51,0
	- 40	41,4-41,8	59,0-59,3	98,9-100,8	29,8-31,5	48,9-50,6
	- 70	44,0-44,3	61,9-62,4	100,4-103,3	31,0-32,5	47,3-48,6
	- 196	88,5-83,8	93,9-94,2	118,2-118,9	30,6-22,2	21,5-22,8
	+ 20	44,5-45,9	63,2-63,5	93,1-94,0	20,2-22,3	40,3-41,2
	- 20	46,5-47,4	67,2-67,3	108,9-99,9	22,3-24,3	39,1-39,8

Card 5/8

LEYKIN, I.M.; LEBEDEV, Yu.I.; ANDREYEV, I.I.; BEDA, N.N.; Primalni uchastnye: LIVSHITS, G.L.; TEREENT'YEVA, Ya.K.; FILONOV, V.G.; GONCHAROV, I.A.; NAFTALOVICH, S.M.; KUPRIKOV, P.Z.; ABKINA, R.I.; ROSHCHINA, A.A.; LUPYAKOV, A.G.

Steel of the 18G2-grade. Sbor. trud TSNIICHM no.35:92-101 '63.  
(MIRA 17:2)

2

CA TEREENT'YEVA, Y. A.

Ionites (ion-exchange resins) and their uses. D. I.  
Myachikov and B. A. Terent'eva. *Uspehi Khim.* 19,  
220-31(1950).—A crit. review; 178 refs. N. Thon

1951

TERENT'YEVA, YE. A.

USSR/Chemistry - Sulfonation

May 52

"Sulfonation and Sulfonic Acids of Acidophobic Compounds, XIX. Polarographic Investigation of Pyrrole-sulfonic Acids," A. P. Terent'yev, L. A. Yanovskaya, Ye. A. Terent'yeva, Org Chem Lab, Moscow State U

Zhur Obshch Khim, Vol 22, No 5, pp 859-865

Pyrroles, e.g., 1- and 2-acetylpyrrole and 1-phenylpyrrole, can be sulfonated with pyridine sulfotrioxide to form  $\alpha$ - and  $\beta$ -sulfonic acids. The method of oxidative polarography can be used to determine the position of the sulfo group in pyrrole sulfonic acids. Separate polarographic determination of  $\alpha$ - and  $\beta$ -pyrrole sulfonic acids in a mixt is possible.

263T35

1. TERENT'YEVA, Ye. A.
2. USSR (600)
4. Crystallography
7. Disk-like crystals, Priroda, 41, No. 10, 1952.
9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

TERENT'YEVA, Ye. A.

"ASimultaneous Quantitative Microdetermination of Phosphorus, Sulphur, Carbon, and Hydrogen in Phosphorus-Organic Substances ." Cand Chem Sci, Inst of Organic Chemistry imeni K. D. Zelinskiy, Acad Sci USSR, 28 Dec 54. (VM, 17 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR  
Higher Educational Institutions (12)  
SO: Sum. No. 556, 24 Jun 55

TERENTYEVA, E. A.

USSR/ Chemistry - Conference

Card : 1/1

Authors : Terentyeva, E. A., and Rukhadze, E. G.

Title : Conference on complex compounds

Periodical : Priroda, 6, 73 - 74, June 1954

Abstract : Minutes of the meeting held in Dec 1953 in Moscow under the auspices of the Institute of General and Inorganic Chemistry of the Acad. of Sciences USSR. Complex compounds were the main topic of the conference.

Institution : Acad. of Sc. USSR, Institute of Gen. and Inorg. Chemistry, Moscow

Submitted : ....

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755410004-4

RECENT EVR. YCA

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755410004-4"

TERENTYEVA, Ev. A.

USSR/ Chemistry - Analytical chemistry

Card 1/1 : Pub. 145 - 4/10

Authors : Korshun, M. O.; Terentyeva, Ev. A.; and Klimova, V. A.

Title : Rapid micro-elementary analysis methods. Part 8.-Simultaneous microdetermination of C, H and P in phosphoro-organic compounds of the C,H,O,P and N-composition.

Periodical : Zhur. anal. khim. 9/5, 275-281, Sep-Oct 1954

Abstract : A new method for simultaneous micro-determination of C,H, and P in compounds of C,H,O,P and N-composition, is described. The time of one analytical determination is about 1.5 hrs and the deviation from the theory does not exceed 0.3%. The advantages of the new method are: rapidity, possibility of analyzing substances which do not yield to decomposition by other methods, combined determination of P,C and H in the very same batch and preservation of the quartz test installation from corrosion. Results obtained by the new method are shown in table. Twenty-nine references: 8-USSR; 6-German; 5-USA; 4-French; 1-Italian; 1-English; 1-Australian; 1-Czech; 1-Hungarian and 1-Belgian (1898-1953).

Institution : Acad. of Sc. USSR, Institute of Elementary-Organic Compounds, Moscow

Submitted : July 9, 1954

NIH Trans.— /M.

TERENTYEVA, E. A.

USSR/ Chemistry - Analysis

Card 1/1 Pub. 22 - 26/60

Authors : Korshun, M. O., and Terentyeva, E. A.

Title : Rapid microelementary analysis methods

Periodical : Dok. AN SSSR 100/4, 707-709, Feb 1, 1955

Abstract : Announcement is made on the development of new methods for simultaneous quantitative micro-determination of P, S, C and H in organo-phosphorus compounds of the C, H, O, N, S, P composition. The methods were found to be particularly suitable for the analysis of hardly decomposing, unstable, liquid and highly volatile substances. Some results obtained through the application of the new methods are described. Five USSR references (1949-1954). Table.

Institution : Academy of Sciences, USSR, Institute of Elementary Organic Compounds

Presented by : Academician A. N. Nesmeyanov, July 19, 1954

TERENT'YEVA, Ye.A., kandidat khimicheskikh nauk (Moskva)

Polonium oxide. Priroda 45 no.2:84 F '56

(MIRA 9:5)

1. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii  
pri Gostekhnike i Akademii nauk SSSR.  
(Polonium)

SOV/63-4-2-16/39

5(0)

AUTHORS: Terent'yev, A.P., Corresponding Member of the AS USSR, Terent'yeva, Yev. A.  
Candidate of Chemical Sciences

TITLE: Achievements of Organic Elementary Analysis

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2,  
pp 242-249 (USSR)

ABSTRACT: In organic chemistry fast methods for the analysis of small quantities are necessary. In the analysis of carbon and hydrogen a tube with a universal filling consisting of various catalysts, oxidants and sorbents is used. It has been proposed, however, to replace this filling by silver vanadate, etc, which catalyzes oxidation, lowers the temperature of decomposition and absorbs obstructing products [Ref 7]. A new method is the preliminary pyrolysis of the sample in a quartz test tube, introduced by Korshun [Ref 16, 17]. The process takes place in an oxygen stream at 900°C. It permits the analysis of 3-5 elements in one sample [Ref 18]. The absorption of oxides is often carried out by  $K_2Cr_2O_7$  and concentrated sulfuric acid outside of the tube [Ref 28]. There is a trend to automate the determination of C and H [Ref 44-48]. Korshun and Unterzaucher [Ref 49-52] developed a micromethod for the direct de-

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## Achievements of Organic Elementary Analysis

SCV/63-4-2-16/39

termination of oxygen in a stream of nitrogen and the transformation of the decomposition products into carbon dioxide by means of carbon black of 1,150°C and iodine pentoxide. In another method the sample is decomposed with coal and strontium oxide [Ref 70]. Nitrogen is determined by vacuum pyrolysis [Ref 31-47]. The tube is filled by copper oxide. The nitrogen is finally measured in a nitrogen-meter. The sample may be heated together with magnesium powder which method transforms nitrogen compounds into magnesium nitride [Ref 88]. A variant of the hydration method consists in pyrolytic decomposition of the sample in a stream of hydrogen and the use of an iron catalyst [Ref 91]. Sulfur is determined by oxidation or reduction. In the first case the oxidation products are transformed into the  $\text{SO}_4$ -ion by metallic silver [Ref 95-99]. Korshun has shown that at low temperatures of 400 - 450°C silver is quickly consumed. The  $\text{SO}_4$ -ion is weighed in the form of  $\text{Ag}_2\text{SO}_4$  or in organic and inorganic bases [Ref 111, 112]. In the reduction methods sulfur is decomposed in a stream of hydrogen with the formation of hydrogen sulfide [Ref 119], in the presence of metallic calcium [Ref 120, 121], etc. In hydrocarbons sulfur may be determined directly by means of X-rays [Ref 125]. In the pyrolysis of halide-containing organic compounds halide derivatives are formed which act as inhibitors in the oxidation of carbon monoxide which lowers the measured results. A

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SN/63-4-2-16/39

# Achievements of Organic Elementary Analysis

platinum contact or the adsorption on silver [Ref 127] is therefore recommended. Stepanov proposed a 15%-solution of ethylene glycol in isobutyl alcohol as solvent [Ref 128]. The fusion of halides with calcium or other metals at 800°C permits the simultaneous separation of 2 - 3 halides [Ref 132, 165]. Fedoseyev and Sobko proposed an "elimination" method in which the light halides are eliminated by the heavy halides from the adsorbents, potassium bromide and iodide [Ref 133, 134]. Fluorine may be determined by thorimetric titration [Ref 132, 139]. "Moist" burning, i.e. oxidation by means of oxidants, like  $\text{KMnO}_4$ ,  $\text{CrO}_3$ , is used in the analysis of organic compounds containing metals. Chromic acid and its salts dissolved in sulfuric and phosphoric acids are oxidants used in biochemistry, for the determination of  $\text{Cl}^{14}$ , etc. In some cases complete oxidation may be obtained by additional dry burning. This method is applied to the analysis of complex organic compounds [Ref 161].

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Achievements of Organic Elementary Analysis

SOV/63-4-2-16/39

There are 170 references, 48 of which are Soviet, 65 English, 43 German, 6 Japanese, 4 French, 2 Czechoslovak, 1 Canadian and 1 Swiss.

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SOV/63-4-3-31/31

5(2)

AUTHORS: Terent'yeva, Yev.A., Korshun, M.O. (Deceased)

TITLE: The Polarographic Determination of Titanium in Titanium-Silicon-Organic Compounds

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3, pp 415-416 (USSR)

ABSTRACT: At present there are no methods for determining titanium in organic compounds. The compounds were hydrolyzed and  $Ti^{4+}$  determined by the polarographic method. The analysis was carried out in an atmosphere of nitrogen to avoid the oxygen band. The concentration of titanium was determined by means of a calibrating line plotted for a series of batches of metallic titanium. The curves were taken from a self-recording electronic polarograph of the type PE-312. There are 2 graphs, 1 diagram, 1 table and 13 references, 8 of which are Soviet, 3 English, 1 Czechoslovakian and 1 Chinese.

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SOV/63-4-3-31/31

The Polarographic Determination of Titanium in Titanium-Silicon-Organic Compounds

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Element-Organic Compounds of the Academy of Sciences USSR)

SUBMITTED: November 29, 1958

Card 2/2

TERENT'YEVA, Ye.A.; BERNATSKAYA, M.V.

Simultaneous amperometric determination of zirconium and sulfur  
in organic compounds. Zhur. anal. khim. 19 no.7:876-880 '64.  
(MIRA 17:11)

1. Institute of Organo-Element Compounds, U.S.S.R. Academy of  
Sciences, Moscow.

BC

a-3

137 207 102 82122  
 Synthesis with the use of acrylonitrile. II. Synthesis of a  
*N*-substituted piperidine. A. P. Terentev and E. A. Terenteva  
 (J. Gen. Chem. Russ., 1943, 18, 418-417).—Although the general  
 addition reaction of primary and sec. amines at the CC of  $\alpha$ -un-  
 saturated nitriles is well known, few details are available for the case  
 of  $\text{CH}_2=\text{CH}-\text{CN}$ . The reaction between  $\text{CH}_2=\text{CH}-\text{CN}$  and piperidine  
 is studied and a new synthesis of  $\alpha$ -dipiperidinopropene is  
 described.

$\alpha$ -Dipiperidinopropenitrile (I) is prepared by adding  $\text{CH}_2=\text{CH}-\text{CN}$   
 (31.2 g.) to piperidine (34 g.) in a flask fitted with a reflux condenser;  
 the reaction is spontaneously exothermic. The product is then  
 heated for 4 hr. (temp. not stated), giving (I) (~50 g.), b.p. 100–102°/  
 8 mm.,  $d_4^{20}$  0.9457,  $n_D^{20}$  1.4712,  $M_N$  66.86 (calc. 66.86). It gives a  
 sparingly sol. picrate,  $\text{C}_{16}\text{H}_{22}\text{N}_4\text{O}_7$ , and a nitrate, m.p.  
 187.5–188°. Reduction to  $\alpha$ -piperidino- $\beta$ -propylamine (II) is  
 carried out by treating (I) (30 g.) in bottles  $\text{Et}_2\text{OH}$  (500 ml.) with  
 $\text{Li}$  (40 g.). Addition of 5% aq. solution of 10% aq. solution  
 3 times with  $\text{H}_2\text{O}$  gives (II) (30 g.), b.p. 110–112°/10 mm.,  $d_4^{20}$  0.8966,  
 $n_D^{20}$  1.4786,  $M_N$  64.88 (calc. 64.88). (II) is a very strong base; it  
 gives a picrate, m.p. 200–205°, but no insol. compound with  $\text{PtCl}_4$ .  
 With  $(\text{CH}_3)_3\text{Br}$  (25 g.) in  $\text{C}_6\text{H}_6$  (50 ml.) under reflux for 4 hr. (II)

(12 g.) gives (after treatment with conc. caustic alkali)  $\alpha$ -dipiper-  
 idinopropene (yield not stated), b.p. 141–145°/10 mm.,  $d_4^{20}$  0.9153,  
 $n_D^{20}$  1.4641,  $M_N$  66.87 (calc. 66.86). It gives a sparingly sol. picrate  
 chloride and a picrate, m.p. 190°. Q. B. S.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

296M 170315V

140060 12

140060 121 01V 011

011111011

130M 00010V

011111 011 01V 111

TERENT'YOVA, Y. N.

Complex compounds of rare earth metals and some organic amines. D. I. Ryabchikov and Y. A. Terent'eva. *Compt. rend. acad. sci. U.S.S.R.* 51, 291-4(1966).—Ce, La, Pr, Nd, Y, and Er form complex compds. with org. amines, having a coordination number of six. With phenylmethylpyrrolidone (antipyrone) the product is  $[M(C_{11}H_{11}ON_2)_6]X_n$ , where X is the acid radical and M is the metal. The N-dimethylantipyrone (pyramidone) mol. has two N atoms connected to Me groups and can take up two of the coordination places in the metal atom, forming, for instance,  $[Ce((CH_3)_2ON_2)_4](NO_3)_2$ . Attempts to make analogous compounds with pyridine, of the formula  $M(NDRN)_n$ , were not successful. A. S. Kastman

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SYMBLYA

SYMBOL MAP ONLY USE

RELATION

FROM SYMBOL

RELATION MAP ONLY USE

AEC  
G115  
TERENT'YEVA, Ye. A.

Rare Earths

572. Methods of separation of the rare-earth elements, by D. I. Rialchikov and  
E. A. Terenteva. *Progress in Chemistry (U.S.S.R.)* 16. p. 461-489.  
July and August 1947. (In Russian).

A review of 118 references.

AFONCHIKOV, N.A., inzh.; TERENT'YEV, Ye.A., inzh.

Effect of the sodium salt of carboxymethylcellulose on the grinding of the pulp and paper properties. Bum. prom. 38  
no.11:8-10 N '63. (MIRA 17:1)

1. Leningradskaya bumazhnaya fabrika Upravleniya proizvodstvom gosudarstvennykh znakov, monet i ordenov.

.. TERENT'YEVÁ, YE. A.

USSR/Metals  
Cerium  
Rare Earths

Dec 1947

"Complex Citric Acid Compounds of Rare Earth Elements of the Berium Group," D. I. Ryabchikov, Ye. A. Terent'yeva, Inst Geochem and Analytic Chem imeni V. I. Vernadskiy, Acad Sci USSR, 34 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVIII, No 7

Describes tests and studies leading authors to conclude that due to relationship between potassium citrate and rare earth element salts of cerium group, there is a primary reaction which produces a compound which will dissolve with difficulty. Reaction forms a simple salt of this group of metals with a citric acid residue. Submitted by Academician I. I. Chernyayev, 15 May 1947.

PA 60T74

TERENT'YEVA, YE. A.

PA 27/49T26

USSR/Chemistry - Rare Earth Metals  
Chemistry - Organic Compounds

Jan/Feb 49

"Complex Formations of Rare Earth Metals," D. I. Ryabchikov, Ye. A. Terent'yeva, Inst Geochem and Anal Chem, Acad Sci USSR, 12 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 1

Establishes that rare earth elements form quite stable, complex compounds with series of substitutes. Obtains such compounds with a number of organic amines and salts of organic acids. Finds that, in a number of rare earth elements, their ability to form complex compounds increases sharply with decrease in their ionic radius. Submitted 20 Feb 48.

27/49T26

TERENT'YEVA, Ye. A.

"Investigation in the Field of Complex Compounds of the Rare-Earth Elements." Sub 19 Oct 51, Moscow Order of Lenin State U ineni K. V. Lomonosov.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

*Handwritten:* 1951

TERENT'YEVA, YE. A.

USSR/Physics - Rare Earth Elements

Apr 52

"The Rare Earth Elements," Ye. A. Terent'yeva

"Priroda" No 4, pp 71-81

Gives a chronological history of investigations of the rare earth elements, with emphasis on Russian (e.g., Mendeleev, etc.) and Soviet work. States that Soviet chemist V. S. Sadikov and associates are studying the influence of rare earth elements on various processes in the field of org chemistry; they have found that catalysts such as Friedel-Crafts, accelerate certain reactions such as  $Al_2O_3$  Zinke, Reformatsky, Ul'man; Nd oxide on  $Al_2O_3$

21970

accelerates dehydrogenation of paraffins; etc. M. B. Ravič and B. A. Zakharov showed that the and Ce oxide mixt lowers combustion temp of  $H_2O_2$  over shamotte from 950 to 4500 for same rate. Discusses the properties and certain applications of the rare earth elements, namely, in medicine and agriculture, besides physics and chemistry. Describe metallurgical uses.

21970

TORONT'eva, E. A.

USSR/Chemistry    Rare metals

Card                : 1/1

Authors            : Toront'eva, E. A., Candidate in Tech. Sciences

Title               : New developments with rare metals

Periodical        : Priroda, 43/7, 95 - 96, July 1954

Abstract           : An experiment is described in which Y, Tb, Dy, Ho, Er, and Tu  
were obtained from a halide of rare earths using a tantalum  
vessel out of which the air was forced by argon and an induction  
furnace as a heat source. In a second experiment yttrium fluoride  
was used as the raw material.

Institution        : .... Inst. Sci. Information, AS USSR

Submitted          : ....

AID P - 2754

Subject : USSR/Chemistry

Card 1/1 Pub. 119 - 2/6

Authors : Ryabchikov, D. I. and Ye. A. Terent'yeva (Moscow)

Title : New developments in methods of separation of rare earth elements

Periodical : Usp. khim. 24, 3, 260-274, 1955

Abstract : This article is a sequel to: "Methods of separation of rare earth metals", by D. I. Ryabchikov and Ye. A. Terent'yeva, Usp. khim. 16, 461-489 (1947); This is a survey of literature covering fractional crystallization, "homogeneous" precipitation, extraction with organic solvents, separation with ionites, and methods based on change in the valency. 74 references (14 Russian: 1906-1953)

Institution : None

Submitted : No date

TERENCE J. C. V. H. S. A.

S/074/60/029/010/004/004  
B013/B075

AUTHORS: Ryabchikov, D. I. and Terent'yeva, Ye. A.  
TITLE: News About Separation Methods of Rare-earth Elements ✓  
PERIODICAL: Uspekhi khimii, 1960, Vol. 29, No. 10, pp. 1285-1300

TEXT: The present article is a survey on separation methods of rare-earth elements. The aim of this paper is to make the reader acquainted with the progress achieved in the field referred to, both in the USSR and abroad. Beside the development of new but already approved methods of ion exchange, of extraction, and of electrochemistry, classical methods of fractional crystallization and precipitation are accomplished by introducing complex-forming agents (Ref. 4). Furthermore, completely new methods are suggested: the so-called "drying" method, the method basing on the variously quick dehydration of chlorides, the oxysulfone method, and others. The following methods are particularly taken into consideration: Fractional crystallization and precipitation (Refs. 5-36); extraction by means of organic solvents (Refs. 37-66); ion exchange (Refs. 67-123); paper chromatography and electrochromatography (Refs. 124-132); method basing on the

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News About Separation Methods of Rare-earth Elements S/074/60/029/010/004/004  
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different mobility of ions (Ref. 133); methods basing on a change of the valence states of elements. Reduction (Refs. 134-140) and oxidation (Refs. 141-144) belong to these methods. Furthermore, the method depending on a different rate of dehydration of chlorides (Refs. 145, 146), as well as the magnetic method (Refs. 147-149) are briefly mentioned. A test of the separation methods described in publications, which was carried out under operating conditions, has shown that only few of them are noteworthy. It is apparently more rational to set up separation schemes composed of several methods. By this means all the advantages of these methods can be utilized as fully as possible. For the purpose of separating all pure elements from natural mixtures, D. I. Ryabchikov, M. M. Senyavin, and Yu. S. Sklyarenko (Refs. 2 and 3) have developed a detailed scheme for the processing of rare earths. In this case a previous separation of the cerium subgroup from the yttrium subgroup is absolutely necessary. This is required also if the raw material employed consists of minerals of incomplete composition in which only one of the mentioned groups predominates. N. S. Vagina, G. Virts, N. N. Mironov, A. I. Odnosevtsev, R. V. Kotlyarov, G. P. Kozhemyako, V. M. Klinayev, V. V. Fomin, Z. F. Andreyeva, O. I. Rozhdestvenskaya, and A. K. Lavrukhina are mentioned. There are 149 references: 32 Soviet, 45 US, 8 British, 5 Chinese, 1 Hungarian, 2 Italian, 10 Japanese

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News About Separation Methods of Rare-earth Elements S/074/60/029/010/004/004  
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2 Swedish, 8 Swiss, 1 Danish, 10 French, and 21 German.

ASSOCIATION: In-t geokhimii i analiticheskoy khimii im. V. I. Vernadskogo  
AN SSSR  
(Institute of Geochemistry and Analytical Chemistry imeni  
V. I. Vernadskiy of the AS USSR)

✓

Card 3/3

TERENT'YEVA, Ye.A.

Polarographic determination of aluminum in aluminosiloxanes.  
Zav.lab. 28 no.7:807-808 '62. (MIRA 15:6)

1. Institut elementoorganicheskikh soedineniy AN SSSR.  
(Aluminum--Analysis) (Silicon organic compounds)

ACCESSION NR: AT4035163

S/0000/63/000/000/0134/0140

AUTHOR: Ryabchikov, D. I.; Terent'yeva, Ye. A.

TITLE: Complex-formation as the basis for the separation of the rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'nyye elementy\* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 134-140

TOPIC TAGS: rare earth, rare earth separation, rare earth analysis, complex-formation, maleic acid, fumaric acid, citric acid, nitrilotriacetic acid, EDTA

ABSTRACT: In a general discussion of the theoretical bases for the separation of the rare earths, the authors note that some observations made on the complexes of the rare-earth elements with the isomeric, dibasic, unsaturated acids maleic and fumaric acid are of considerable interest. Under the influence of temperature, light, halogen acids, etc., the less stable maleic acid is converted to the more stable fumaric acid. Maleic acid forms many soluble complexes with the rare-earth elements. With fumaric acid, no complex can be formed; therefore, the difficult soluble simple salts are precipitated spontaneously. Upon standing or heating in the presence of HBr, the readily soluble complex maleates of the rare-earth elements are gradually converted into the difficult soluble fumarates. Therefore,

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ACCESSION NR: AT4035163

If the fumarates of the different rare-earth elements were found to have different solubilities, the fractions containing different components could be separated. This could be taken as a basis for a new method of separation of rare-earth mixtures. Extensive experimental material leads to the important conclusion that the rare-earths are rather strong complex-forming compounds, which produce a bond with the ligands preferably through the oxygen atom and less frequently through a tertiary nitrogen. The complex-forming capacity of the rare-earth elements with any ligand increases with decreasing ionic radius of the element in the order La - Lu. The strength of the complex depends on the pH of the medium and usually decreases with increasing acidity. For all the rare-earth elements in the trivalent state, the coordination number is six. The complex steps during the isolation of individual rare-earth elements from natural material are the division of their totality into two subgroups (cerium and yttrium), separation of the predominant elements (La, Ce and Y), and separation of the residual mixture. The conditions for this separation are discussed. At optimal parameters of the process under dynamic conditions, the coefficients of distribution of several rare-earth elements (Tu, Yb, Er) are measured and the separation factors are calculated. On the basis of experimental data, other complexing agents are arranged in the following order according to their separating power: ethylenediaminetetraacetic acid, nitrilotriacetic acid, citric acid. Orig. art. has: several chemical equations; 1 table and 3 figures.

Card

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ACCESSION NR: AT4035163

ASSOCIATION: Institut geokhimi i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63

DATE ACQ: 30Apr64

ENCL: 00

SUB CODE: 1C

NO REF SOV: 014

OTHER: 000

Card 3/3

VOL'PIN, M.Ye.; AKHREM, I.S.; TERENT'YEVA, Ye.A.; KURSANOV, D.N.

Mechanism of tropylation reaction. Izv.AN SSSR.Otd.khim.nauk  
no.5:802-808 My '63. (MIRA 16:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Tropylium compounds)

TERENT'YEVA, Ye.A.; MALOLINA, T.M.

Polarographic determination of iron in organoiron compounds.

Zhur. anal. khim. 19 no.3:353-356 '64. (MIRA 17:9)

1. Institut elementoorganicheskikh sovedineniy AN SSSR, Moskva.

USSR / Human and Animal Physiology (Normal and Pathological).  
Blood.

T-4

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60204

Author : Bagdasarov, A. A.; Terent'yeva, E. I.; Vinograd-Finkel',  
F. R.; Rutberg, R. A.; Leontovich, V. A.; Skopina, S. B.

Inst : Not given

Title : Leukocyte Mass - A New Transfusion Medium

Orig Pub : V sb.: sovrem. probl. gematol. i perelivaniya krovi.  
Vyp. 32, M. Medgiz, 1956, 23-33

Abstract : For obtaining a leukocyte mass (LM) from blood, prepared  
without a stabilizer (S) with the aid of ionogens,  
pectinic acid, sodium pectinate (I) and intradex (II)  
were used for the sedimentation of erythrocytes (E). I  
in a concentration of 0.4% and II in 0.6 - 0.8% produced  
a separation of plasma with 70 - 90% leukocytes (L)  
in 30 - 45 minutes. From 450 ml. of donor's blood, about

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USSR / Human and Animal Physiology (Normal and Pathological).  
Blood.

T-4

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60204

2 billion L were obtained. I and II did not produce any toxic reactions in rabbits. Patients responded favorably toward transfusions of IM, prepared with II. The sedimentation of blood in a horizontal position with a subsequent change to a vertical one, increased the separation rate of E from the plasma and L. For the maintenance of sterility, 0.025 g. of sodium-sulfacyl and 0.0015 g. of rivanol was added to the colloidal sedimentation agents per 225 ml. of blood. The addition of 0.6% solution of glucose increased the leukocyte viability. During the first few days, 93 - 95% of L maintained their usual characteristics. By preserving the L with fibrinogen-containing plasma with the addition of glucose to the serum, in colloidal and even saline solution, a non-specific clumping occurred

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USSR / Human and Animal Physiology (Normal and Pathological).  
Blood.

T-4

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60204

on the 3 - 5th day. The largest number of viable L was obtained by keeping them at 8 - 10°; at 18 - 27° L were rapidly destroyed. The neutrophils degenerated the earliest (on the 10th day about 20% of them remained); the lymphocytes were the most viable. Phagocytic activity dropped sharply with the length of time of preservation. The ability to granulate the vital stain was preserved for a longer period; on the 10th day, it remained in 50% of the leukocytes. Antiseptics did not affect the viability of the L. After removal of plasma the LM was placed into ampoules TsIPK / Central Institute of Blood Transfusion / No 1. The transfusion was made from this ampoule by a stream with a reduced rate of speed. Moderate amounts of LM may be transfused with a silicated syringe. The transfusion of LM within the first day produced no complications. -- A. D. Boloborodova

Card 3/3

TERENT'YEVA, Ye.I.; ZOSIMOVSKAYA, A.I.; MURAZIAN, R.I.

Cytochemical determination of indole derivatives in hemopoietic  
elements. Probl. gemat. i perel. krovi 5 no. 12:14-18 '60.  
(MIRA 14:1)

(INDOLES) (HEMATOPIETIC SYSTEM)

TERENT'YEVA, Ye.I.

Electron microscopy of hemopoietic elements; a survey. Probl. gemat.  
i perel. krvi 5 no. 11:3-16 '60. (MIRA 14:1)  
(HEMATOPOIETIC SYSTEM) (ELECTRON MICROSCOPY)

TERENT'YEVA, Ye.I.; ZOSIMOVSKAYA, A.I.

Histidine, arginine, and SH-compounds in blood and bone marrow cells  
and their changes under the influence of roentgen rays. Med. rad.

5 no.11:20-24 N '60.

(MIRA 13:12)

(BLOOD)

(MARROW)

(X RAYS--PHYSIOLOGICAL EFFECT)

TERENT'YEVA, Yo.I.; KAZANOVA, L.T.

Cystochemistry of phosphatases, oxidases, and peroxidases in  
hematopoietic elements in radiation injury. Med.rad. 6 no.3:  
39-43 '61. (MIRA 14:5)  
(RADIATION SICKNESS) (HEMOPOIETIC SYSTEM) (ENZYMES)

TOTCHAYA, A.A.; TERENT'YEVA, Ye.I.; ABRAHAM'YEV, G.K.

Electron microscope structure of the blood platelets in dogs  
following the development of acute radiation injury. Radi-  
biologiya 2 no.1:87-91 Ja '62 (MIRA 18:1)

TERENT'YEVA, Ye.L.

Ascorbigen, bound form of ascorbic acid. Biokhimiia, Moskva 17 no.6:  
641-645 Nov-Dec 1952. (CML 25:1)

1. State Control Vitamin Station, Moscow.

1. RECENT LITERATURE

Chem. Abs.

U.48 26 Jan 54

Biological Chem.

✓ The chemical composition of ascorbigen. E. L. Terent'eva (Vitamin Control Sta., Moscow). *Biokhimiya* 18, 290-301 (1953).—The purpose of the study was to det. the components assocd. with ascorbic acid in ascorbigen. Ascorbigen was obtained from cabbage juice (C.A. 47, 4945f). Ascorbigen yields pos. reactions with the Pauli and Adamkewitch tests, neg. Millon test when heated with Pb acetate at alk. pH; neg. biuret test; pos. xanthoproteic test, pointing to the presence of the benzene ring and indicating that albumins are absent in ascorbigen, since no ppt. and no turbidity develop in the course of the reaction. Ascorbigen was pptd. with HgSO<sub>4</sub> and HgNO<sub>3</sub> to prevent the rapid changes which it undergoes when exposed to air. Hg was removed by H<sub>2</sub>S. Other appropriate purification steps are indicated but not described in sufficient detail. Unhydrolyzed ascorbigen tested by paper chromatography reacts with AgNO<sub>3</sub> and with ninhydrin. This reaction can be utilized in the identification of ascorbigen in biol. specimens and indicates that ascorbigen is a chem. complex consisting of ascorbic acid in combination with a group of amino acids. Parallel chem. analyses of ascorbigen and its Hg deriv. with regard to its content of ascorbic acid and tryptophan indicate the existence of a chem. bond between ascorbigen and tryptophan. Ascorbigen is probably important in albumin metabolism. B. S. Levine

(2)

RH 8-11-54

TERENT'YEVA, YE. L.

Acad Med Sci USSR. Inst of Biological and Medical Chemistry.

TERENT'YEVA, YE. L.: "Ascorbigen -- the bound form of ascorbic acid; some data on its chemical composition and suggestions as to its role in the organism." Acad Med Sci USSR. Inst of Biological and Medical Chemistry. Moscow, 1956.  
(Dissertation for the Degree of Candidate in Biological Sciences)

SO: Knizhnaya Letopis', No. 20, 1956

LAVROV, B.A.; TERENT'YEVA, Ye.L.

Body reaction to the introduction of large doses of vitamin  
D<sub>2</sub> (experimental data), Vest. AMN SSSR 18 no.2:54-60 '63.

(MIRA 17:7)

1. Institut vitaminologii Ministerstva zdavookhraneniya SSSR.

LAVROV, B.A.; TEREENT'YEVA, Y+L.

Citric acid levels in the blood of rats during prolonged  
administration of large doses of vitamin D. Vop. pit. 22 no.3;  
68-72 My-Ie '63. (MIRA 17:8)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo instituta  
vitaminologii Ministerstva zdravookhraneniya SSSR, Moskva.

PROCESS AND PROPERTY

7

*Ca*

Detection and determination of naphthalene-1,5-disulfonic acid in the presence of naphthalene-1,8-disulfonic acid. A. P. Terentev and R. M. Terenteva. *Ni. Repts. Moscow State Univ.* 1936, No. 6, 199-205. — 1,5-C<sub>10</sub>H<sub>6</sub>(SO<sub>3</sub>H)<sub>2</sub> (I) but not 1,8-C<sub>10</sub>H<sub>6</sub>(SO<sub>3</sub>H)<sub>2</sub> (II) yields a yellow ppt. of C<sub>10</sub>H<sub>6</sub>Br<sub>2</sub> when treated with KBrO<sub>3</sub>-KBr in acid soln.; the reaction will serve to detect not less than 0.01% of I. With II partial substitution of Br takes place but no insol. product is formed. To det. either I or II treat the aq. soln. of the K salt with 3% of Na-Hg and after 14 hrs. titrate the SO<sub>3</sub>H<sup>-</sup> formed with I<sub>2</sub>. With I both SO<sub>3</sub>H groups are eliminated but with II only 1 SO<sub>3</sub>H group. Detection and determination of naphthalene-1-sulfonic acid in the presence of naphthalene-2-sulfonic acid. A. P. Terentev and K. K. Magaram. *Ibid.* 207-11. — 1-C<sub>10</sub>H<sub>7</sub>SO<sub>3</sub>K (III) but not 2-C<sub>10</sub>H<sub>7</sub>SO<sub>3</sub>K (IV) yields C<sub>10</sub>H<sub>6</sub>Br<sub>2</sub> when treated with KBrO<sub>3</sub>-KBr; not less than 0.0125% of III suffices to give the test. Treatment of III but not IV with Na-Hg (as above) gives SO<sub>3</sub>H which can be detd. volumetrically. In this way III can be detd. alone or in presence of IV. H. C. A.

ASB-11A METALLURGICAL LITERATURE CLASSIFICATION

62

Mar., Lab. Organic Chemistry I. N. P. Zelinsky, Moscow State Univ. Im. M. V. Lomonosov -114-  
"On the Formation of Butadiene-1,3, Chloroacetylene, and Acetaldehyde by the Action of High Frequency Electrical Discharge upon Acetylene and Its Mixtures with Other Substances," Dok. AN, 24, No. 4, 1949;  
"The Catalytic Hydrogenation of the Cycloheptene Hydrocarbons with Ring Opening," XII, IZ. Ak. Nauk SSSR. Otdel. Khim. Nauk, No. 1, 1949.

**Syntheses in the acridine series. Study of acridine compounds as a source of antimalarials.** A. M. Geigovskii and E. M. Terent'eva (Inst. Pharmacol., Chemotherapy and Pharmaceut. Chem., Moscow). *J. Gen. Chem.* (U.S.S.R.) 17, 617-21 (1947) (in Russian); cf. *C.A.* 41, 4495c.—On the basis of earlier observations on antimalarial activity of acridine compds. (Magidson and Travin, *ibid.* 6, 909 (1934); *C.A.* 35, 7065f), atabrine, carrying an electropos.  $\text{NH}_2$  group, should have superior potency in tests with avian malaria. 2,3- $\text{Cl}_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ , prepd. by heating 2,3- $\text{Cl}_2\text{C}_6\text{H}_3\text{Me}$  with dil.  $\text{HNO}_3$  in sealed tubes to 130–40°, m. 161–2°. This (7 g.), 3.2 g. *p*-anisidine, 4 g.  $\text{K}_2\text{CO}_3$ , 0.5 g.  $\text{KOAc}$ , 25 cc.  $\text{BuOH}$ , and 0.01 g.  $\text{Cu}$  powder were refluxed 3 hrs.; after steam distn., the residue was filtered and the solid was recrystd. from water to yield *N*-(4-methoxyphenyl)-3-chloroanthranilate, which with dil.  $\text{HCl}$  gave the free acid, m. 147–8° (from  $\text{EtOH}$ ); this (4 g.) and 28 g.  $\text{POCl}_3$  were heated to reflux 1 hr., freed of excess  $\text{POCl}_3$  by distn., and the residue, dild. with 150 cc.  $\text{Me}_2\text{CO}$ , was made alk. with concd.  $\text{NH}_4\text{OH}$ .  $\text{Me}_2\text{CO}$  to give 3.4 g. 2-methoxy-5,9-dichloroacridine, m. 157–8°. This (5 g.) and 3.6 g.  $\text{H}_2\text{NCH}_2\text{MeCH}_2\text{CH}_2\text{NHEt}_2$  (I) in 10 g.  $\text{PhOH}$  were heated 3 hrs. at 100°, dild. with 25 cc. abs.  $\text{EtOH}$ , and the soln. was acidified to Congo red with alc.  $\text{HCl}$ ; on dildn. with  $\text{Et}_2\text{O}$  the  $\text{HCl}$  salt

of the product sepd. as an oil which was washed with  $\text{Et}_2\text{O}$ , and pptd. from water with  $\text{NH}_4\text{OH}$  to give the oily base which was shaken out of  $\text{Et}_2\text{O}$  with dil.  $\text{HCl}$ , neutralized with dil.  $\text{NaOH}$ , and converted in  $\text{EtOH}$  to the oxalate, m. 165–6° (decompn.); neither the  $\text{HCl}$  salt nor the oxalate could be obtained in a solid state. The product, 2-methoxy-5-chloro-9-(4-diethylamino-1-methylbutylamino)acridine, was biologically inactive. In an attempt to prep. the 8- $\text{Cl}$  analog, 2,6- $\text{Cl}_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$  condensed as above with *p*-anisidine gave only *m*-bis(*p*-methoxyanilino)benzene, m. 107–8.5° (from  $\text{EtOH}$ ), and the synthesis was abandoned. 2-Methoxy-7-nitro-6,9-dichloroacridine (5 g.) (cf. Magidson, G., and Halperin, *C.A.* 32, 5405f) and 10 g.  $\text{PhOH}$  were heated 60 min. to 100°, then 4 hrs. at 95–100° with 3.4 g.  $\text{I}$ , and poured into 200 cc. 10%  $\text{NaOH}$  to give 5 g. 2-methoxy-6-chloro-7-nitro-9-(4-diethylamino-1-methylbutylamino)acridine, m. 107–11° (from  $\text{Me}_2\text{CO}$ ). This (9 g.), 25 g.  $\text{SnCl}_4$ , 70 cc. concd.  $\text{HCl}$ , and 35 cc.  $\text{EtOH}$  refluxed 2 hrs., cooled, filtered, and washed with  $\text{EtOH}$ , yielded 10 g. of the  $\text{Sn}$  complex, which was treated in 200 cc. hot  $\text{H}_2\text{O}$  with excess  $\text{NaOH}$ , extd. with  $\text{Et}_2\text{O}$ , the ext. dried and evapd., and the residue in 30 cc. hot benzene treated with 90 cc. hot petr. ether to give 4.8 g. 2-methoxy-6-chloro-7-amino-9-(4-diethylamino-1-methylbutylamino)acridine, m. 122°; this with  $\text{HCl}$  in  $\text{Me}_2\text{CO}$  gave the  $\text{HCl}$  salt, decomp. 250–60° (from  $\text{EtOH}-\text{Et}_2\text{O}$ ). The product was an active antimalarial.

G. M. Koudapoff

TERENTYEVA, Ye. M.

Cand Chem Sci

Dissertation: "Investigations in the Field of Catalytic Hydration of Cyclopentane Hydrocarbous Under Atmosphere and Increased Pressure of Hydrogen."

10 March 49

Inst of Organic Chemistry, Acad Sci USSR

SO Vecheryaya Moskva  
Sum 71

CA

PROCEDURES AND PROPERTIES INDEX

**Catalytic hydrogenation of cyclopentane hydrocarbons with ring opening. XII. Hydrogenation of isopropylcyclopentane.** B. A. Kazanskii, E. M. Terent'eva, and M. I. Batuev. *Izv. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1949, (9):7; cf. C.A. 43, 1332b. (1) On 40 ml of a 20% Pt on C catalyst, characterized by an 80% yield of  $C_{10}H_{18}$  in dehydrogenation of cyclohexane at 295° and space velocity 0.20, isopropylcyclopentane (I) +  $H_2$ , passed at a space velocity of 0.06-0.21 at 275°, gave a catalyze b. 115-25°, n<sub>D</sub> 1.4131-1.4150. By fractionation, about 35% of the catalyze is paraffins; the gas (at space velocity 0.06) is  $H_2$ , 60.2, satd. hydrocarbons 2.0, (1, 0.3, N<sub>2</sub> 1.1%. At 300°, space velocity approx. 0.2, the catalyze b. 113.6-28°, n<sub>D</sub> 1.4163, and contains 45-50% paraffins. The combined catalyzates of the 275° and the 300° runs were fractionated into b.p.s. 106.5-13.0° (3.5 vol. %, n<sub>D</sub> 1.4052, uniline point 61.4), 113.0-14.0° (4.0, 1.4040, 65.6), 114.0-15.8° (67.5, 1.4029, 60.1), 115.5-16.5° (5.7, 1.4030, 68.0), 116.5-17.5° (4.3, 1.4050, 66.0), 117.6-17.6° (5.2, 1.4100, 62.0), 117.6-21.5° (3.5, 1.4142, 57.0), residue (2.0, 1.4218, 50.8). By nitra-

tion and sulfonation, the residue contains *m*- and *o*-xylene in the approx. ratio 2:1. By Raman spectra, the fraction b. 114.0-15.8° contains 68 (±6)%  $PrCHMeCHMe$  and 32 (±6)%  $Me_2CHCHMe$ ; in the fractions b. 115.5-17.6°, 2-methylheptene was identified by Raman lines. (2) The main reaction thus consists in a rupture of the 2,3- and 4,5-bonds. To a lesser extent, bond 3,4 is broken, and, to an even lesser extent, bonds 1,2 and 1,5. The yield of aromatic hydrocarbons does not exceed 2-3%; their formation, in particular the 2:1 ratio of *m*- and *o*-xylene, and the near absence of  $PhMe$ , are difficult to explain. (3) The following is a synthesis of I giving better yields than methods previously described. Dimethylfulvene (100 g.) dissolved in an equal vol. of EtOH is hydrogenated under an initial pressure of 40-50 atm. in the presence of Raney Ni (10% of the wt. of fulvene). The operation is repeated 5-6 times until no more  $H_2$  is absorbed, and the soln. washed, shaken with concd.  $H_2SO_4$ , washed again, dried, and distd. The yield is 95% of the theory.

N. Thon

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ASS-55A METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNDICATE

FROM SYNDICATE

FROM SYNDICATE

FROM SYNDICATE

CA

10

Catalytic hydrogenation of cyclopentane under high hydrogen pressures. B. A. Kazanski and E. M. Terent'eva. *Doklady Akad. Nauk S.S.S.R.* 72, 511-13 (1959). The hydrogenation was carried out in an autoclave with batches of 10 g. cyclopentane and 2 g. platinized C with initial  $H_2$  pressures of 20-50 atm. On heating, the pressure rises regularly until, at a definite temp., there is a sudden drop indicating the beginning of a fast hydrogenation. That temp. is higher the higher the pressure, e.g., with initial  $H_2$  pressures (at room temp.) of 20 and 50 atm., the pressure attains its max. and begins to fall rapidly at about 300 and 330°, resp. At a given const. pressure, the extent of the reaction (%  $C_5H_{12}$  formed) within 1 hr. increases first slowly, then, from a certain temp. up, very steeply; the higher the initial pressure, the higher is the temp. required to reach a stated degree of conversion. Thus, at an initial 20 and 50 atm., 50% conversion is reached at about 320 and 375°. At const. temp. (320-400°) the yield of  $C_5H_{12}$  in 1 hr. falls with increasing initial pressure. The same effects are found with a Ni-on-kieselguhr catalyst but, along with the simple hydrogenation to  $C_5H_{12}$ , there is a considerable amt. of deep disruption with formation of  $CH_4$ . With an initial pressure of 20 atm., no reaction occurred below 200°; at 270-400°, the liquid catalyze contained 20-30%  $C_5H_{12}$ , the gas 70-80%  $CH_4$ . Under an initial pressure of 50 atm., the same products were obtained only at 340-500°. At 400°, all of the cyclopentane was converted to  $CH_4$ . Higher pressure of  $H_2$  evidently results in a poisoning of the catalyst with respect to the hydrogenation reaction. On palladized C, cyclopentane is not hydrogenated at all. N. Thon

191T10

USSR/Chemistry - Cyclic Hydrocarbons Sep/Oct 51

"Properties and Chemical Reactions of Cyclopentadiene," Ye. M. Terent'yeva, A. F. Plate, Moscow

"Uspekhi Khim" Vol XX, No 5, pp 560-588

States that this is the 1st general review of subject published in the Russian language since B. A. Kazanskii's article in "Uspekhi Khim" 1934, No 3, p 116, and points out that in connection with development of the petroleum and coke-chem industry in the USSR, consideration of new ways for using this compd is appropriate. Discusses phys properties, formation, and analytical detn of

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USSR/Chemistry - Cyclic Hydrocarbons Sep/Oct 51  
(Contd)

cyclopentadiene, its reactions with various compds, reactions of dicyclopentadiene, higher polymers of cyclopentadiene and its copolymers with other unsatd compds.

191T10

TERENT'YEVA, Ye. M.

TERENT'YEVA, Ye.M.

Chem Abs V48

1-25-54

Organic Chemistry

~~Hydrindene~~, B. A. Kazinski, A. F. Plac, and E. M. Terent'eva. *Akad. Nauk S.S.S.R. Izv. Org. Khim.* *Sintezy Org. Soedinenii, Sbornik 2*, 70-1(1962); cf. C.A. 47, 8003A. —Hydrogenation of indene in the presence of 10% Raney Ni at 60-150 atm. H at room temp. over 4-5 hrs. yields 92-95% hydrindene, *b<sub>m</sub>* 170.1-6.2°, *d<sub>20</sub>* 0.9640, *n<sub>D</sub>* 1.5383. The product is best distd. from Na. G. M. K.

MF  
4-20-54

# USSR

Catalytic hydrocondensation of carbon monoxide with aldehydes.  
XII. Hydrocondensation of carbon monoxide with hex-1-ene.

Ya. T. Eidel', N. F. Litman, and Ya. M. Iosadze. XIII. Effects of varying the ratio of ethylene to hydrogen in the initial gas, of dilution with nitrogen, and of varying the rate of flow on hydrocondensation of carbon monoxide with ethylene. Ya. T. Eidel', K. V. Litman, and Ya. M. Iosadze. *Izvestia Akad. Nauk SSSR Khim. Prom. Nauk* 1954, 892, 899, 900, 907. XII. The main product obtained when 1:1 hex-1-ene  $H_2$  mixtures are passed over an adsorbed catalyst at 190°C is  $C_{10}H_{22}$ , 71% yield, with about 2% of higher hydrocarbons  $C_{11}$  or more. Mixtures containing hex-1-ene 45, 51, 55, 60, 65, 70, 75, 80, 85, 90, 95, and  $H_2$  45, 44, 43, 42, 41, 40, 39, 38, 37, 36, 35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0% yields of  $C_{10}H_{22}$ .

Nitrogen dilution of the gas from 1:1  $H_2$  to 1:1 mixtures containing 5%  $N_2$  to 10% are obtained with 1 vol. of  $C_6H_{12}$  to 1 vol. of  $H_2$ . The catalyst is concentrated hydrocarbons in the gasoline fraction (m.p. 20°C). The  $H_2$ : $C_6H_{12}$  ratio rises from 1 to 3. The overall yield of hydrocarbons with increasing dilution with  $N_2$  from 4.8 to 21%. The yield of heavy oil is constant over this range, of light oil rises, and of gasoline falls, as the  $N_2$  content rises from 5 to 55%. The yields calculated as ml. of oil per cc. m. of gas are unaffected and calculated as ml. of oil rise linearly when the rate of flow of the gas is increased.

R. T. T. T. T.

USSR/Chemistry - Hydrocarbons

Card 1/1 : Pub. 22 - 14/41

Authors : Topchiev, A. V. Academician; Rozenberg, L. M.; Nechitaylo, N. A.; and Terentyeva, E. M.

Title : Differential-thermal investigation of the complex formation of urea with n-paraffins

Periodical : Dok. AN SSSR 98/2, 223-226, Sep 11, 1954

Abstract : Certain data connected with the clarification of conditions leading to complex formation of solid paraffinic hydrocarbons, are presented. Using octadecane  $C_{18}H_{38}$  as an example the authors investigated the effect of the degree of paraffin purification on its ability of complex formation, thermal stability of the complex and the effect of an activator of various chemical nature. It was established that octadecane, having a high degree of purity and pulverization, reacts with urea at room temperature with the aid of an activator. The effect of absolute hydrocarbon purity on its reaction with urea in the presence and absence of activators, is explained. Eleven references: 5-USSR; 4-German; 1-USA and 1-English (1855-1954). Graphs.

Institution : Academy of Sciences, USSR, Petroleum Institute

Submitted : June 18, 1954

TOPCHIEV, A.V.; ROZENBERG, L.M.; NECHITAYLO, N.A.; TERENT'YEVA, Ye.M.

Differential thermal study of complexing in the system:urea -  $\sqrt{N}$  -paraffin.  
Zhur.neorg.khim. 1 no.6:1185-1193 Js '56. (MIRA 9:10)  
(Urea) (Paraffins)

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755410004-4

PL. M. ROMANOFF, P. M. TROSKA, M. A. NACHBAR, and J. Y. 41

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755410004-4"

62-1-5/21

**AUTHORS:** Peregudov, G. V.; Markova, S. V.; Bazhulin, P. A.; Plate, A. F.;  
Terentyeva, Ye. M.

**TITLE:** Optical Method of Studying Hydrocarbons. Part 10. Combined Diffusion  
Spectra of Certain Naphthenes (Opticheskiy Metod issledovaniya  
uglevodorodov. Soobshcheniye 10. Spektry kombinatsionnogo rasseyaniya  
nekotorykh naftenov)

**PERIODICAL:** Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1957,  
No. 1, pp. 37-42 (U.S.S.R.)

**ABSTRACT:** In this report, the results (combined diffusion spectra) obtained  
during the study of nine naphthenic and one aromatic hydrocarbons  
(three mono-cyclic cyclopentane, three dicyclic cyclohexane and four  
bicyclic hydrocarbons with condensed rings) are presented. All data  
on the intensities and frequencies of the hydrocarbons were determined  
photometrically. For each hydrocarbon, a brief description of its  
derivation and the basic constants such as boiling point, specific weight,  
index of refraction is given. The intensity data are expressed in a

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Optical Method of Studying Hydrocarbons. Part 10. Combined 62-1-5/21  
Diffusion Spectra of Certain Naphthenes

somewhat modified scale established by G. S. Landsberg and Associates (10). It was established on the basis of  $C_{11}$  -  $C_{13}$  hydrocarbons that the spectra of monosubstituted cyclopentane hydrocarbons have many weak and diffused lines. A majority of frequencies in this hydrocarbon series coincide; a distinction was observed only in the  $150 - 600 \text{ cm}^{-1}$  zone.

An increase in the radical displaces the most intensive deformation frequency into a zone of smaller frequencies. All the spectra observed showed the presence of an  $890 \text{ cm}^{-1}$  line pertaining to the fully symmetrical fluctuation of the five-membered ring. The intensity per molecule for the  $890 \text{ cm}^{-1}$  frequency was found to be approximately constant. A perfect analogy was seen to exist between the spectra of dicyclohexyl, dicyclohexylmethane and 1, 2-dicyclohexylethane and with the monosubstituted cyclohexane hydrocarbons.

Card 2/3 Table. There are 21 references, of which 11 are Slavic.

Optical Method of Studying Hydrocarbons. Part 10. Combined 62-1-5/21  
Diffusion Spectra of Certain Naphthenes

ASSOCIATION:

Academy of Sciences of the USSR, Physics Institute imeni P. N.  
Lebedev and Institute of Organic Chemistry imeni N. D. Zelinskiy

PRESENTED BY:

SUBMITTED:

December 13, 1955

AVAILABLE:

Library of Congress

Card 3/3

TERENT'YEVA, Ye. M.

AUTHORS: Nechitaylo, N. A., Rozenberg, L. M., 20-4-24/51  
Terent'yeva, Ye. M., and Topchiyev, A. V., Academician

TITLE: Investigation of Systems of the H-Paraffin-Hydrocarbons  $C_{20}$  -  $C_{30}$  and  $C_{30}$  -  $C_{32}$  (Issledovaniye sistem H-parafinovykh uglevodorodov  $C_{20}$  -  $C_{30}$  i  $C_{30}$  -  $C_{32}$ )

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 4, pp. 613-616 (USSR)

ABSTRACT: The hydrocarbons which form the petroleum paraffins are according to their chemical nature heterogeneous. Normal long chain hydrocarbons of  $C_{17}$ - $A_{36}$  form their main part. In small quantities branched hydrocarbons, cycloparaffins, and alkyl benzenes occur. There are no perfect separation methods for hydrocarbons in the mentioned types. Therefore the industrial exploitation of the petroleum paraffins to the organic synthesis is considerably complicated. A detailed study of the properties of individual H-paraffins as well as of the interaction with each other and with the hydrocarbons of other classes is necessary for the identification and detection of the purity degree of the synthesized hydrocarbons etc. After a short review of references the authors find that the binary systems researched up to now do not contain the entire component range of the petroleum paraffins. The impossibility of a complete elimination of admixtures and occurrence

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Investigation of Systems of the H-Paraffin- Hydrocarbons 20-4-24/51  
 $C_{20} - C_{30}$  and  $C_{30} - C_{32}$ .

of manifold phase variations in the solid state complicates extremely the interpretation of the physical-chemical knowledge obtained by the classic methods. In present paper the investigation results of the state diagrams of the binary systems of the H-paraffins  $C_{20}H_{42} - C_{30}H_{62}$  and  $C_{30}H_{62} - C_{32}H_{66}$  are given by means of the differential-thermal and the microstructure method. There are no corresponding data in the references. Eikosan and triakontan were produced according to Kolbe by electrosynthesis, dotriakontan according to Wuerz, then several times purified. The warming- and moderating curves were detected by means of photoregistering pyrometer of Kurnakov. From these curves then the melting temperatures and those of the polymorphous transformation can be found. Table 1 shows the temperature of the phase variations in the system  $n-C_{20}H_{42} - n-C_{30}H_{62}$ , whereas figure 1 shows a state diagram. The system is eutectic. In all mixtures of 66-100% triakontan an effect occurs quite obviously at the warming- and moderating curves which corresponds to a polymorphous transformation of the concerning hydrocarbon. Its size increases, as it was expected, with the increase of the triakontan content. From the observed microstructure in the polarized light it can be assumed that the phase transition found at  $29 - 30^{\circ}$  belong to the

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Investigation of Systems of the H-Paraffin- Hydrocarbon  
C<sub>20</sub> - C<sub>30</sub> and C<sub>30</sub> - C<sub>32</sub>.

20-4-24/51

type of irreversible transformations which are observed in the case of H-paraffin-hydrocarbons and their derivatives with a moderately long chain (up to 22-C atoms). However, this transition is in spite of its irreversibility one of the slow ones which occur in the case of preparation conservation. No final opinion exists about this. For pure eikosan no polymorphous transformations were found. This corresponds to Hoffman's assumption (reference 15) that in the case of individual H-paraffin-hydrocarbons with only 22 and more C-atoms in the chain "turning- transitions" ("vrashchatel'nyye perechody"Pl) occur. The n-α-modifications of the triakontan and dotriakontan form an uninterrupted series of solid solutions. With dropping temperature the α-solid solution passes over into a β-solid solution which is formed by polymorphous carbon modification which are stable below the transition point. There are 2 figures, 2 tables, and 20 references, 3 of which are Slavic.

ASSOCIATION: None Given.

PRESENTED: None Given.  
Card 3/4

Investigation of Systems of the H-Paraffin- Hydrocarbon  
C<sub>20</sub> - C<sub>30</sub> and C<sub>30</sub> - C<sub>32</sub>.

20-4-24/51

SUBMITTED: September 19, 1956

AVAILABLE: Library of Congress

Card 4/4

1242171504, YF 41.

20-4-23/52

AUTHORS:

Topchiyev, A. V., Member of the AN USSR,  
Nechitaylo, N. A., Rozenberg, L. M., and  
Tèrent'yeva, Ye. M.

TITLE:

A Study of the Systems of Normal Paraffinic Hydrocarbons  
 $C_{30}-C_{34}$  and  $C_{30}-C_{36}$  (Issledovaniye sistem normal'nykh  
parafinovykh uglevodorov  $C_{30}-C_{34}$  i  $C_{30}-C_{36}$ ).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 629-631 (USSR)

ABSTRACT:

The authors studied (reference 1) the phase diagrams of the systems of n-paraffin hydrocarbons of high molecular contents. The treatise discussed here mentions further systems by means of the differential-thermic method or of the micro-structure method. These diagrams have not been described for binary systems: triacontane-tetratriacontane ( $C_{30}H_{62}-C_{34}H_{70}$ ) and triacontane-hexatriacontane ( $C_{30}H_{62}-C_{36}H_{74}$ ). The experimental products were produced synthetically and several times recrystallized. As is well known all n-paraffins have reversible polymorphous transformations, whose temperatures as well as the melting temperatures could be determined from the warming curves. The thermograms

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20-4-23/52

A Study of the Systems of Normal Paraffinic Hydrocarbons  
 $C_{30}-C_{34}$  and  $C_{30}-C_{36}$

were recorded by the photo-registering pyrometer of Kurnakov. The data given in table 1 and 2 are the average of several determinations. The warming curves of the mixtures of the systems investigated were perfectly identical with the cooling curves. The results of the thermic analysis of the binary system triacontane-tetratriacontane are given in table 1, its phase diagram can be seen in figure 1. Both substances form a system with continuous solid solutions (figure 1). The polymorphous modifications of n-paraffins which are eliminated from the melting mass during the crystallization process are denoted with  $\alpha$ . They form a continuous solid solution which is also marked with  $\alpha$ . After some lowering of temperature the  $\alpha$ -solid solution changes into a continuous solid solution consisting of  $\beta$ -modifications. They remain stable in temperatures as low as room temperature. The  $\beta$ -solid solution suffers no changes at lower temperatures. The almost straight liquidus line

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A Study of the Systems of Normal Paraffinic Hydrocarbons  
 $C_{30}-C_{34}$  and  $C_{30}-C_{36}$

20-4-23/52

proves that when the second component is added to a hydrocarbon with higher melting point this point is only slightly lowered. The temperature of final crystallization is lowered more remarkably. It is very difficult to judge on the state of purity of the n-paraffin preparations by the determination of the melting point and the solidification point by means of the capillary method (thermometrically). It is hardly possible to state the begin and the end of the crystallization. The point of polymorphous transformation suffers a much stronger lowering of the temperature of crystallization when a second component is added. The transitional temperature is much more susceptible to the admixture than is the crystallization temperature. Table 2 shows the results of the thermic analysis of the system triacontane-hexatriacontane. Its phase diagram can be seen in figure 2. This system is analogous to the preceding one. Here, too, the liquidus line is almost straight. Thus the n-paraffins discussed above form systems of continuous solid solutions which in solid state suffer the first type of transformations according to Rozeboom.

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A Study of the Systems of Normal Paraffinic Hydrocarbons  $C_{30}-C_{34}$  and  $C_{30}-C_{36}$  20-4-25/72

There are 2 figures, 2 tables, and 8 references, 1 of which is Slavic.

ASSOCIATION: Institute for Petroleum of the AN USSR (Institut nefti Akademii nauk SSSR)

SUBMITTED: April 11, 1957

AVAILABLE: Library of Congress

Card 4/4

TERENT'YEVA, Ye. M., NECHITAYLO, N. A., TUPCHIN, A. V. and ROSENBERG, L. M.

"Separation of Petroleum Paraffins into Normal and Isomer Hydrocarbons"  
p. 208

Composition and Properties of the High Molecular Weight Fraction of  
Petroleum; Collection of Papers, Moscow, Izd-vo AN SSSR, 1958. 370pp. (Inta nefti)  
2nd Collection of papers publ. by AU Conference, Jan 56, Moscow.

The temperature ranges for the decomposition of complexes of individual normal paraffins  $C_{16}$  to  $C_{32}$  were determined by means of the differential-thermal analysis. They can be used for the identification of normal paraffins. It was shown that urea is not a selective reagent for normal paraffins. Only slight branch paraffins easily form urea complexes. Most of the isoparaffins which were separated from the Grozny paraffin as urea complexes have slightly branched structures. Hydrocarbons which do not react with urea resemble the cycloparaffins. There are 6 figures, 2 tables, and 39 references of which 8 are Soviet, 24 English, and 7 German.



5(3)

AUTHORS:

Torent'yeva, Ye. M., Rozenberg, L. M. SOV/62-59-3-2/37

TITLE:

A New Qualitative Reaction for Hydrocarbons With a Tertiary Carbon Atom (Novaya kachestvennaya reaktsiya na uglevodorody s tretichnym uglerodnym atomom)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp 385-388 (USSR)

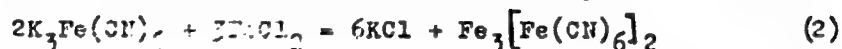
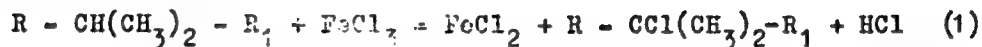
ABSTRACT:

In the present paper a qualitative reaction with  $\text{FeCl}_3$  for hydrocarbons having a tertiary carbon atom was suggested which permits the control of their occurrence in the form of impurities in paraffin-hydrocarbons of normal structure. It may be assumed that the reaction of ferric chloride with hydrocarbons proceeds in a similar way as the reaction of  $\text{FeCl}_3$  with aromatic compounds (Ref 17). The chlorination of such hydrocarbons is accompanied by the transition of trivalent into bivalent iron. This transition can be observed on the formation of a greenish-blue ring of Turnbull blue on the line of separation between the hydrocarbon layer and the aqueous solution on addition of aqueous potassium ferricyanide solution

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A New Qualitative Reaction for Hydrocarbons  
With a Tertiary Carbon Atom

SOV/62-59-3-2/37



The correctness of the assumed mechanism of reaction of the chlorination of branched paraffins with  $FeCl_3$  was confirmed by means of chlorination of 2-methyl heptane at room temperature and following decomposition of the halogen derivative formed with metallic sodium and transformation of chlorine into chlorine ion. The qualitative reaction described was applied to experiments with individual paraffins, their mixtures and pure paraffin-hydrocarbons which were obtained from the kerosene fraction of the Romashkinskaya petroleum oil. The results obtained are shown by tables 1, 2 and 3. The experiments have shown that the reaction proceeds by 0.5% wherefore it is not suited for the device of a quantitative method.

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A New Qualitative Reaction for Hydrocarbons  
With a Tertiary Carbon Atom

SOV/62-59-3-2/37

The considerable sensibility of the reaction of ferric chloride with potassium ferricyanide makes it possible to determine small impurities of hydrocarbons containing tertiary carbon atoms in paraffins of normal structure. There are 3 tables and 17 references, 9 of which are Soviet.

ASSOCIATION: Institut nefiti Akademii nauk SSSR (Petroleum Institute of the Academy of Sciences, USSR)

SUBMITTED: July 16, 1957

Card 3/3

5(3)

**AUTHORS:**

Puzitskiy, K.V., Terent'yeva, Ye.M., SOV/62-59-7-24/38  
Eydus, Ya.T.

**TITLE:**

On the Catalytic Hydrocondensation of Carbon Monoxide With Olefines (O kataliticheskoy gidrokondensatsii okisi ugleroda s olefinami) XXI. Relations of Some Hydrocarbons With Conjugated Double Bonds to the Reaction of Hydrocondensation With Carbon Monoxide. (Soobshcheniye 21. Otnosheniye nekotorykh uglevodorodov s sopryazhennymi dvoynymi svyaziyami k reaktsii gidrokondensatsii s okis'yu ugleroda)

**PERIODICAL:**

Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1959, Nr 7, pp 1318 - 1323 (USSR)

**ABSTRACT:**

The reaction mentioned in the title has hitherto been applied to monoolefines of the acyclic and alicyclic lines (Refs 1-3). In this paper the attempt is made to extend the reaction also to di-olefines with conjugated double bonds. The apparatus used is described in references 1-2. The initial products were technical butadiene-1,3 and cyclopentadiene-1,3. The conditions for the reaction were

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On the Catalytic Hydrocondensation of Carbon Monoxide SOV/62-59-7-24/38  
With Olefines. XXI. Relations of Some Hydrocarbons With Conjugated Double  
Bonds to the Reaction of Hydrocondensation With Carbon Monoxide

atmospheric pressure and a temperature of  $190^{\circ}$ . The activity of the contacts and the yield of hydropolymerisates were great: 500 - 600 ml/m<sup>3</sup> were obtained referred to ( $\text{CO}_2 + \text{H}_2 + \text{C}_2\text{H}_4$ ). The results of the experiments with butadiene-1,3 are listed in table 1-2. From the data is evident that at the beginning, the reaction takes a slow course. Also the condenser was consumed very rapidly by the reaction of hydrocondensation. In the presence of an amount of hydrogen, which was enough to condense the entire butadiene and which was mixed with propylene, the reaction developed quite well. In the hydrocondensation with cyclopentadiene a small amount (4 - 5 %) of its mono-, di- and tri-derivates was formed, so that the cyclo-pentadiene as well as the hydrogenized cyclopentene were methylated. The cyclopentadiene dimerized in an amount of 20 %. The results of the analysis of the single fractions are given in other tables. The figures show the curves of distillation of the

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On the Catalytic Hydrocondensation of Carbon Monoxide SOV/62-59-7-24/38  
With Olefines. XXI. Relations of Some Hydrocarbons With Conjugated Double  
Bonds to the Reaction of Hydrocondensation With Carbon Monoxide

single fractions. There are 3 figures, 6 tables, and  
8 references, 7 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N.D. Zelinskogo Akademii  
nauk SSSR  
(Institute of Organic Chemistry imeni N.D. Zelinskiy of the  
Academy of Sciences, USSR)

SUBMITTED: November 15, 1957

Card 3/3



S/076/60/034/012/006/027  
B020/B067

AUTHORS: Nechitaylo, N. A., Topchiyev, A. V., Rozenberg, L. M.,  
and Terent'yeva, Ye. M.

TITLE: Study of n-Paraffinic Hydrocarbon Systems

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 12,  
pp. 2694-2703

TEXT: Using the thermal and microstructural method the authors studied eight phase diagrams of n-paraffinic systems:  $C_{30} - C_{32}$ ,  $C_{30} - C_{34}$ ,  $C_{30} - C_{36}$ ,  $C_{26} - C_{30}$ ,  $C_{22} - C_{30}$ ,  $C_{20} - C_{30}$ ,  $C_{22} - C_{26}$ , and  $C_{18} - C_{20}$ . The following n-paraffins were synthesized according to Kolbe and Wurtz: octadecane  $C_{18}H_{38}$ , eicosane  $C_{20}H_{42}$ , docosane  $C_{22}H_{46}$ , hexacosane  $C_{26}H_{54}$ , triacontane  $C_{30}H_{62}$ , dotriacontane  $C_{32}H_{66}$ , tetratriacontane  $C_{34}H_{70}$ , and hexatriacontane  $C_{36}H_{74}$ . The heating and cooling curves were taken by an automatic, photorecording Kurnakov pyrometer. The temperatures of the

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Study of n-Paraffinic Hydrocarbon Systems

S/076/60/034/012/006/027  
B020/B067

phase transitions of the hydrocarbons synthesized are given in Table 1. The phase diagram of the systems  $C_{30} - C_{32}$ ,  $C_{30} - C_{34}$  and  $C_{30} - C_{36}$  are shown in Figs. 1, 2 and 3. In all systems homogeneous solid solutions were formed. The systems  $C_{30} - C_{20}$  (Fig. 4) and  $C_{22} - C_{30}$  (Fig. 5) form eutectics (Fig. 5). The temperatures of the phase transitions obtained from the results of thermal analysis are given in Table 2. The system  $C_{26} - C_{30}$  contains series of homogeneous solutions (Fig. 6 and Table 3). The phase diagram of the system  $C_{18} - C_{20}$  is given in Fig. 7 and the results of the thermal analysis of the system are given in Table 4.  $C_{26}$ , which was synthesized by the authors, is a two-phase system whose monoclinic component predominates. The presence of a component with triclinic structure  $C_{22} - C_{26}$  essentially influenced the results of thermal analysis and thus rendered certain parts of the phase diagram indistinct. The experimental material on binary systems of n-paraffins obtained as well as published data prove that the structure of the component is the decisive factor in the formation of systems. The ratio of the chain lengths in the

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Study of n-Paraffinic Hydrocarbon Systems

S/076/60/034/012/006/027  
B020/B067

systems concerned is given in Table 6. According to the theoretical concepts which were presented in the papers by A. I. Kitaygorodskiy the phases with different structures cannot form a series of homogeneous solid solutions. Actually, the  $\alpha$ -phases of both components are isomorphous in the system  $C_{22} - C_{30}$ , the hexagonal  $\alpha$ -modification of triacontane, however, is stable only at temperatures above  $58-59^{\circ}C$ . Below these temperatures the monoclinic  $\beta$ -form of triacontane which forms a eutectic mixture with the hexagonal  $\alpha$ -form of docosane is stable. V.M.Kravchenko and N. N. Yefremov are mentioned. There are 8 figures, 6 tables, and 30 references: 11 Soviet, 10 US, 4 British, 1 French, 1 Dutch, 2 German, and 1 Austrian.

ASSOCIATION: Akademiya nauk SSSR, Institut neftekhimicheskogo sinteza, Moskva (Academy of Sciences USSR, Institute of Petrochemical Synthesis, Moscow)

SUBMITTED: March 10, 1959

Card 3/3

TERENT'YEVA, Ye.M.; SANIN, P.I.; STEPANTSEVA, T.G.; KUSAKOV, M.M.;  
SHIMANKO, N.A.; SIDORENKO, V.I.

Synthesis and investigation of the ultraviolet absorption spectra  
of hydrocarbons of the 1,1-diphenylethane series. Neftekhimiia  
1 no.2:141-148 Mr.-Ap '61. (MIRA 15:2)

1. Institut neftekhimicheskogo sinteza AN SSSR.  
(Hydrocarbons-- Spectra)

KUSAKOV, M.M.; SHISHKINA, M.V.; PROKOF'YEVA, Ye.A.; KISLINSKIY, A.N.;  
SANIN, P.I.; TERENCEV, Ye.M.; STEPANTSEVA, T.G.

Investigation of the oscillation spectra of hydrocarbons  
of the 1,1-diphenylethane series. *Neftekhimia* 1 no.3:317-  
328 My-Je '61. (MIRA 16:11)

1. Institut neftekhimicheskogo sinteza AN SSSR.

7  
TERENTYEV, Ye. M.

MUSAYEV, I.A., ROSENBERG, L.M., NIFONTOV, S.S., GALPERN, G.D.,  
MECHITATLO, M.A., TERENTYEV, Ye.M., KUSAKOV, M.M., SAMIN, P.I.

Investigating chemical composition of mid. l. fractions of a  
sulphurous crude oil in the USSR

Report to be submitted for the Sixth World Petroleum Congress,  
Frankfurt, 16-26 June 63

4278-55  
ACCESSION NR: AR5012253

UK/0058/65/000/003/DC33/DC33

indane and the product of its reaction with nitric acid. The values of the degree of the polarization were measured for the most intense spectral lines. It is shown that in each of these spectra there are present all the char-

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acteristic frequencies which have been established from the published data for

Card 912

**"APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755410004-4**

**APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755410004-4"**

**"APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755410004-4**

**APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755410004-4"**



YEROFEEV, B.V.; CHIRKO, A.I.; ~~TERENT'YEVA, Yu.N.~~

Investigating the products of the autooxidation of cyclohexylbenzene.  
Uch.zap.BGU no.42:127-137 ' 58. (MIRA 12:1)  
(Cyclohexane)